A   S   P   I   N.

(Automated Systems for the Production of Intelligence)

SUMMARY

Declass Review by
NIMA/DOD

GROUP 1
Excluded from automatic
downgrading and
declassification
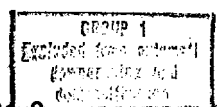
PFIAB

Stimulated creation of ASPIN. It felt that the Agency had not taken full advantage of new developments in information processing.

Original ASPIN Charge

Study the information processing needs attendant to the production of intelligence in CIA with the purpose of designing and developing automated systems that will more effectively serve these needs.

An expansion and clarification of the Project ASPIN's responsibility was approved by the DDI.

Expanded Charge

The basic objective of ASPIN is to develop a broad conceptual design for ADP support to intelligence production. This design should indicate:

1. The types of ADP applications that may be profitably undertaken.

2. The relationships among these applications which ought to be preserved in their design, or modification, and implementation.

3. Specifications for the general system(s) which might bring together these processing systems.

4. Procedures for approval and development of component elements of these systems.

5. Organizational arrangements for the development and operation of this system.

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Project ASPIN

Established   1 July 1969

Authorized and Budgeted for - 2 years

Size of Staff - 12 Professionals - 2 Secretaries
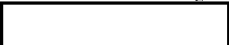
Offices Represented:

DDI	-	O/DDI
		OER
		OSR
		OCI
		CRS
		NPIC

DDS&T	-	OCS
		OSI
		FMSAC
		ORD

DDS	-	OC

Staff's capabilities augmented by a small contract with [   ]

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A S P I N   R E P O R T

Organization

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Part I

    Background is just a brief historical sketch of the development of ADP in the Agency.

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Part II   Computer Applications in Support of Intelligence Production

Computer applications designed to support intelligence production may be characterized in different ways. First, they may be classified as general or special applications, and second they may be categorized according to function performed as follows:

1.   Information Storage and Retrieval

2.   Calculation

3.   Data Reduction

4.   Modelling and Simulation

Appendix to Part II includes detailed descriptions of the applications used in the production of intelligence in the Agency. Descriptions also provide certain cost data, i.e., development costs, operational costs, who developed application and an evaluation of the application.

Production analysts also have been exposed to three relatively large systems, they are:

CHIVE -- Designed to be an ultimate information system which would extract relevant information from all incoming documents, capture these data, store it and retrieve it on demand. These objectives exceed the resources the Agency was prepared to commit to index, abstract and process the records involved. CHIVE, while a technical success of sorts, was reduced in scope and resulted ultimately in a system termed AEGIS, which presently serves analysts calling on the Central Reference Service for research assistance.

COINS -- This community-wide system has been of virtually no use whatsoever to production analysts. The system is currently under review by Agency management to determine whether and how we should continue with the program. Its basic failings have been the lack of attention to the files incorporated into the system and the complex technical nature of the system.

OCS Interactive System -- This is a large-scale effort to provide a general, on-line, time-sharing service for the Agency. It is used to a considerable extent in the development of computer programs for customer offices, as a generalized storage and retrieval system and as a very powerful computational asset. It has been beset with difficulties but continued development to increase its versatility and reliability is definitely warranted.

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Findings:

    1. Intell Analyst wants to specify functions to be performed by application for him but doesn't want to be involved in its development.

    2. Computer analyst/designer attempts to build a system, often too elegant, that will do what he thinks the user should have to do his job properly.

    3. Too much time elapses from conception of an application to its implementation. Cuases of delay:

        a. Poor definition of objectives of the application.

        b. Lack of appreciation of the difficulty and complexity of data inputs for the computer.

        c. Poor communication between substantive analyst and computer analyst.

        d. Lack of central control of project: user controls his office resources but not the OCS resources.

    4. Considerable repetition or overlap on program development among the several data processing centers in the Agency.

Recommendations:

    1. Mechanisms be developed to improve communications between users and computer personnel.

    2. That the personnel resources necessary to explore, develop and test new techniques and concepts be provided by the Agency.

    3. That the present OCS interactive, time-sharing system be expanded to provide for remote batch processing and remote job entry tasks.

    4. That the Information Processing Board define standards for ADP, particularly for applications serving more than one component.

    5. That COINS experiment be evaluated at the earliest possible moment to provide guidance for Agency participation in community efforts.

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Part III   Office of Computer Service Activities

The Office of Computer Services developed from an amalgamation of the business and administrative data processing activities of the Agency and the rapidly growing scientific computational activities which evolved from the creation of the DDS&T.

The Office of Computer Services: 1) operates a general computer processing center for the Agency, and 2) provides computer programming and computer applications design as a service of common concern.

Customers tend to be pleased with the service they receive from OCS. Everyone would like his work done more quickly but few customers thought their processing requests received less than satisfactory attention.

The rapid and dynamic technical changes in the entire computer indstry has engendered uncertainty on the part of OCS personnel and customers as to what to expect in the near term. As system changes take place they usually have a direct impact on individual applications with an attendant reworking of programs that does not contribute to the utility of the application. ASPIN recommends that a more effective mechanism for communicating plans for a major system change be instituted.

To improve communications between computer personnel and user offices ASPIN recommends that applications programmers be assigned to customer offices for tours of duty.

A complete set of procedures should be published and maintained for the use of customers.

A strong computer graphics capability should be developed by OCS in concert with NPIC/AID and ORD/An.

OCS is encouraged to acquire and test a proprietary general data management system; this action should be coordinated with user offices and with other major computer centers within the Agency.

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Part IV   A Central Reference System

Considerable study and analysis of a central reference system within the Agency was undertaken by ASPIN. We concluded that the reference facility of the future should be one which would route a request for information to the appropriate substantive source rather than a reference service being a sole source or repository of information used by and generated by the Agency. This judgement is based, primarily on the increased specialization which has resulted in information tending to reside with those who have the ability to interpret it and relate it to other activities.

A central reference system should provide also for the rapid and accurate dissemination of intelligence information and for the control of this information.

ASPIN has recommended:

That CRS be the point of contact for requests for intelligence information from outside or within the Agency.

Only those data which are accessioned or generated by the reference center will be provided in response to direct requests. All other data sought will be requested from other information centers which have the resources to respond.

Current work on the automated dissemination system should be maintained.

Ultimately, all SI, State, Defense and Agency positive intelligence should be disseminated via a machine-aided system.

Substantive analysts in the production offices should be encouraged to influence the indexing efforts of CRS.

A standardized document reference number scheme should be developed -- initially for internal Agency use, ultimately for community-wide use.

A standard scheme of document indexing by a reference center should be established by high-level management decision.

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The CRS should create an index to other organized collections of information in the Agency.

The present system of document storage and retrieval should be maintained; the speed of delivery of documentary material should be improved.

An extensive interactive capability with regard to the CRS intelligence document index should be developed and tested as quickly as feasible.

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Part V   Research and Development in Information Processing

We observed a number of problems associated with R&D in ADP matters as conducted by the Agency, the more significant are:

The physical separation of ORD/An does little to contribute to user -- developer communications.

Most R&D has been conducted by external contractors with ORD/An serving as a broker and furnishing funds. This has led to undue influence on development efforts by non-Agency elements and insufficient influence by the customer primarily because he does not control the funding of projects.

R&D has had a tendency to be oriented toward the novel in terms of hardware rather than tailoring projects to work on OCS machinery.

ASPIN has recommended that the DDS&T review the division of effort between ORD and OCS in the area of ADP with the end in view of:

1.   Moving problem definition and computer application design and development to OCS from ORD.

2.   Transferring standard ADP equipment from ORD to OCS to provide OCS with the facility to conduct appropriate R&D.

3.   Transferring other equipment to anticipated development programs or declare it surplus.

4.   Conduct a review of existing ORD contracts via the IPS and prospective users to determine which should be continued and under whose cognizance.

5.   Subsequent ADP equipment or software test and analysis be conducted by OCS except where the items are in direct support of a special processing center such as NPIC.

6.   OCS issue a current awareness publication to announce new activities, products and developments of general interest to those engaged in ADP.

In addition, ASPIN recommends that the DDS&T and the IPB reject the proposal of the IHC which would provide for a community-wide R&D center.

Finally, we recommend that R&D projects in the realm of ADP be submitted to the same scrutiny and review as for other significant projects within the Agency.

Part VI   Organizational and Management Elements of Automatic Data
         Processing

Centralization vs Decentralization

   1. Present management of Agency ADP resources is highly decentralized
despite the fact that the Executive Director-Comptroller is the ADP manager.
Such decentralization offers the advantages of being more responsive to user
needs and able to satisfy both short-term and long-term requirements from
individual units. The disadvantages of such decentralization are:

       a. Overlapping and conflicting long-term objectives.

       b. Inability of one unit to profit from experience of
   another.

       c. Insufficient planning.

       d. Inadequate control.

   2. 1965 Agency decision to avoid complete centralization of ADP was
based on a desire to increase the alternatives of the individual with a
problem to solve. Concept still seems valid.

   3. The extent of acquisition of ADP equipment and programming and
processing personnel by CRS and ORD is far greater than was implied or
intended in the 1965 decision. Generally adhered to, this approach would
create more than 20 ADP centers in the Agency.

   4. This kind of decentralization gives the individual office better
control over when its work gets done but at the expense of increased require-
ments for:

       a. highly skilled personnel for whom the offices find
   it difficult to offer a genuine career opportunity.

       b. space for processing centers and their attendant
   logistics.

       c. larger long-run increases in equipment and personnel
   expenditures.

       d. a multitude of systems and computer languages which
   complicates communications between analysts of these systems.

   5. In addition, such offices get into a business with which they
have had little or no experience, a business with the highest rate of
technological change in our society.

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6. they
have never performed before.

7. Finally, such decentralization puts great pressure on top manage-
ment to assure economy and easy interchange of information among these
systems.

8. A centralized processing system on the other hand could be per-
mitted considerable head room in terms of its capacity to handle
processing requests and still permit great economies over a proliferation
of processing centers. Such savings could be realized and still permit
certain functional organizations to acquire their own computers when they
are either geographically located away from Headquarters or have a unique
requirement which can only be economically supported by the functional office.

Problem Definition & Project Control

9. Most critical element in the control of ADP activity is to control
the definition of the problem and the approach to its solution. ASPIN's
preference is to assign these responsibilities to the functional components.
Function offices then would develop and administer the projects that provide
solutions to their problems. Computer processing centers would provide the
capability of processing economically, the workload generated by the
functional offices. Appendix A to this chapter attempts to provide a minimum
statement of the need of project definition and Appendix B provides some
guidance on dealing with a contractor.

10. Agency-wide ADP planning needs to be strenthened. Having several
ADP centers in the Agency, what planning is done is relatively uncoordinated.
Thus one center knows little or nothing about the applications of the others.
This results in inefficient use of scarce, skilled computer personnel. With
such dispersion, total expenditures for common activities are difficult to
bring together and analyze at the Agency level. Such costs are seldom of
concern below that level. An Agency 5-Year ADP Plan published in 1968 was
an initial effort to bring together and identify Agency ADP expenditures
and growth forecasts. Unfortunately, it has not been brought up-to-date
or extended.

Project Review

11. Office review of small projects should be sufficient to insure
that worthwhile objectives are being worked toward.

12. Projects costing more than [   ] to develop (in-house and
contractor) should also be subjected to a central technical review. Such
a review should be performed by a panel composed of Agency personnel
familiar with the type of application proposed by the project. Review
should determine that project is technically feasible and that it is taking
advantage of past Agency experience in the area.

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13. Project review should continue through the life of such projects at identified thresholds.

14. Lack of documentation on project goals, accomplishments, and costs makes project control difficult. Functional component managers have little information on the cost of the ADP support he receives. Further he has no control over the programmers who work on systems to support his activities. The data processing manager is almost equally free of responsibility. He is simply rendering a service.

15. More central planning and control seems necessary.

ADP Career Service

16. Basic skills of ADP personnel are the same. An ADP Career Service could take full advantage of this by:

 a. Making possible a more flexible use of ADP personnel. Assigning/detailing of ADP personnel from one component to another would be simplified. High priority work and/or heavy workloads could be better handled with a minimum of paperwork and in a minimum of time.

 b. Greater variety of tasks and career development possibilities would be available to ADP personnel. This would make their work more interesting and challenging and help to reduce attrition.

 c. Cross-fertilization of ADP experience and know-how would be enhanced.

 d. A more uniform set of position standards, quali- fications, and responsibilities for each job level could be developed and result in a more uniform grade structure for ADP positions.

 e. Unfair competition between ADP professionals and professionals in other disciplines for promotion would be reduced if not entirely eliminated.

17. ASPIN recognizes there are certain weaknesses in such a career service, i.e., one which extends across several directorates and offices and several categories of professional personnel. But we believe that the potential gains for the Agency far outweigh the disadvantages.

Training

18. ADP training program that has been developed in the Agency was deemed to be well balanced and offered the full range of educational

opportunity required for ADP professional development. ASPIN does feel that more widespread development of office level training programs should be encouraged and the NPIC training program that was developed to prepare for the IIS was cited as a good example to follow.

Conclusions and Recommendations

19. The Agency reassert a policy of providing a high degree of centralization in ADP activity in OCS; that this policy be tempered by permitting functional organizations to acquire small or medium computers where there is a demonstrable technical need which results in an economy to the Agency.

20. Functional components be made responsible for problem definition and problem solution.

21. Computer organizations be responsible for developing the systems to run the computers.

22. A central technical management review of major ADP projects be created under the present umbrella of the Executive Director-Comptroller responsibility for Agency ADP management; that a full time position of ADP Advisor to the Executive Director-Comptroller be created.

23. A means of pricing data processing services performed by computer centers should be developed and that each user component be required to budget for its data processing services and transfer the funds in the same way that property funds are handled.

24. An Agency ADP Career Service should be created.

25. Existing ADP training programs introduce additional emphasis on the increased responsibility or role of the user.

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